CLAIMS

We claim:

1. A method of serving target directory information, in a computing environment comprising a server computer hosting the target directory, a client computer communicably linkable to the server computer, the client computer hosting an application and a directory cache, the method comprising the steps of:

receiving from the application a benign request for information relating to a target file potentially contained in the target directory;

inspecting the directory cache to determine whether a valid enumeration of the contents of the target directory is cached in the directory cache;

forwarding the request for information to the server if it is determined that a valid enumeration of the contents of the target directory is not cached in the directory cache;

inspecting the directory cache to determine whether a valid entry for the target file is contained in the enumeration of the contents of the target directory, if it is determined that a valid enumeration of the contents of the target directory is cached in the directory cache;

returning to the application an indication that the target file does not exist in the target directory if it is determined that a valid entry for the target file is not contained in the enumeration of the contents of the target directory; and

if it is determined that a valid entry for the target file is contained in the enumeration of the contents of the target directory, serving the request for information from the directory cache if the valid entry for the target file contains sufficient

information to satisfy the request, and otherwise sending the request to the server and passing a response from the server to the application.

2. The method according to claim 1, wherein the step of receiving from the application a benign request for information relating to a target file potentially contained in the target directory further comprises receiving a request for read-only access.

3. The method according to claim 1, wherein the step of receiving from the application a benign request for information relating to a target file potentially contained in the target directory further comprises receiving the benign request from an input/output manager that received the request from the application.

4. The method according to claim 1, wherein the step of forwarding the request for information to the server if it is determined that a valid enumeration of the contents of the target directory is not cached in the directory cache further comprises caching a response to the request for information in the directory cache.

5. The method according to claim 1 further comprising the step of expiring the directory cache upon the passage of an expiration period.

6. The method according to claim 5, wherein the expiration period is user-settable.

7. A method of managing a directory cache for a target directory, in a computing environment comprising a server computer hosting the target directory, a client computer communicably linkable to the server computer, the client computer hosting an application and the directory cache, the method comprising the steps of:

receiving from the application a non-benign request for information relating to a target file potentially contained in the target directory;

inspecting the directory cache to determine whether a valid enumeration of the contents of the target directory is cached in the directory cache;

forwarding the request for information to the server if it is determined that a valid enumeration of the contents of the target directory is not cached in the directory cache, and caching a server response to the request for information in the directory cache;

inspecting the directory cache to determine whether a valid entry for the target file is contained in the enumeration of the contents of the target directory, if it is determined that a valid enumeration of the contents of the target directory is cached in the directory cache;

invalidating in the directory cache the file information for all entries that begin with the same first character as the target file if it is determined that a valid entry for the target file is not contained in the enumeration of the contents of the target directory; and

invalidating in the directory cache the file information for the target file if it is determined that a valid entry for the target file is contained in the enumeration of the contents of the target directory.

8. The method according to claim 7 wherein the step of receiving from the application a non-benign request for information relating to a target file potentially contained in the target directory comprises receiving a request for access to the target file whereby the request if granted would allow the application to modify the last modified time of the target file.

9. The method according to claim 7 wherein the step of receiving from the application a non-benign request for information relating to a target file potentially contained in the target directory comprises receiving a request for access to the target file whereby the request if granted would allow the application to modify the BDI information of the target file.

10. The method according to claim 7 wherein the step of receiving from the application a non-benign request for information relating to a target file potentially contained in the target directory comprises receiving the request from an input/output manager that received the request from the application.

11. The method according to claim 7 further comprising the step of expiring the directory cache upon the passage of an expiration period.

12. The method according to claim 11 wherein the expiration period is user-settable.

13. A directory cache for caching information regarding files contained in a target directory, the directory cache comprising:

a name field for caching a plurality of names of a plurality of files;

an attribute field associated with the name field for caching file information associated with each of the plurality of files;

a character invalidation field for storing an indication that file information associated with a file having a name that starts with a selected character is invalid;

a number invalidated field for storing an indication of the number of selected characters; and

a security descriptor field for identifying a user.

14. The directory cache according to claim 13, wherein the existence in the name field of a file name starting with a character indicted in the character invalidation is an indication that the file associated with that file name exists on the target directory.

15. The directory cache according to claim 13, wherein the cache expires at the completion of an expiration period.

16. The directory cache according to claim 15, wherein the expiration period is user-settable.

17. The directory cache according to claim 13, wherein the cache is disablable at the indication of a user.

18. The directory cache according to claim 13, further comprising a user ID field identifying a client computer user for whom the cache is maintained.

19. The directory cache according to claim 18, wherein the cache can be disabled by the client computer user.

20. The directory cache according to claim 18, wherein the cache can be disabled by a network administrator.

21. The directory cache according to claim 18, wherein the cache is maintained on a machine other than a machine being used by the client computer user.